AMENDMENTS

IN THE CLAIMS

1. (Amended) A thermally activated, chemically based marking method comprising the steps of:

electrostatically applying a layer of an energy absorbing marking material to a conductive or dielectric substrate to be marked; and

irradiating said layer with a radiant energy beam having less than 20 watts of average power and a wavelength selected to excite said energy absorbing material in accordance with the form of a marking to be applied, thereby forming a marking layer atop said substrate, whereby baking is not required to form the marking layer.

2. (Original) The method of claim 1, further comprising a step of providing a laminar air flow across said substrate during the irradiating step.

3. (Original) The method of claim 1, wherein said marking material comprises at least one metal compound.

Claims 4-9 (previously cancelled)

10. The method of claim 1, wherein said marking material comprises an energy absorbing enhancer.

11. The method of claim 1, wherein said marking material comprises at least one colorant.

12. The method of claim 10 wherein said energy absorbing enhancer comprises carbon black.

13. The method of claim 1, wherein said substrate comprises materials selected from the group consisting of metals, glasses, ceramics and plastics.

14. The method of claim 13, wherein said substrate comprises at least one metal.

15. The method of claim 13, wherein said substrate comprises at least one glass.

16. The method of claim 1, wherein said marking material comprises at least one glass frit material.

17. The method of claim 16, wherein said glass frit material comprises at least one oxide selected from oxides of alkali metals, alkaline earth metals, silicon, boron and transition metals.

18. The method of claim 1, wherein said marking material comprises at least one glass frit material and at least one metal compound.

Claim 19 (previously cancelled without prejudice)

20. (Original) The method of claim 1, wherein said marking material is applied by direct electrostatic coating of a conductive substrate.

21. (Original) The method of claim 1, wherein said marking material is applied by direct electrostatic coating of a dielectric substrate, after said substrate has been coated with a layer of conductive material.

22. (Original) The method of claim 1, wherein said marking material is applied as dry particles.

23. (Original) The method of claim 1, wherein said marking material is applied as liquid droplets.

24. (Original) The method of claim 1, wherein said marking material is electrostatically applied in the form of a marking to be applied to said substrate.

25. (Original) The method of claim 1 wherein said radiant energy beam is produced by a laser, diode laser or diode-pumped laser.

26. (Original) A substrate as marked by the method of claim 1.

Claims 27-65 (previously cancelled without prejudice)

66. (Original) A thermally activated chemically based marking method comprising the steps of:

electrostatically applying a layer of glass frit material containing an energy absorbing enhancer to a glass substrate; and

irradiating said layer with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancer in accordance with the form of a marking to be applied, thereby forming a bonded and permanent marking layer atop the substrate which is visible in contrast with the substrate; and

wherein the layer of glass frit material has a thickness ranging between 5 and 500 microns.

67. (Original) The method of claim 66, further comprising the step of providing a laminar air flow across the substrate during the irradiating step.

68. (Original) The method of claim 66, wherein said glass frit material is applied as dry particles.

69. (Original) The method of claim 66, wherein said glass frit material is applied as liquid droplets.

70. (Original) The method of claim 66, wherein the glass frit material further comprises a borosilicate glass and the energy absorbing enhancer comprises carbon black.

71. (Original) The method of claim 66, wherein the radiant energy beam comprises a laser beam having an energy level ranging between 1 and 30 watts, a spot size ranging between 5 and 200 microns, and a marking speed along the substrate ranging between 25 and 1000mm/sec.

72. (Original) The method of claim 66, wherein said irradiating step is started at a room temperature of about 70 F.

73. (Original) The method of claim 66, wherein the glass frit material further comprises a colorant.

74. (Original) The method of claim 73, wherein said colorant comprises at least one organic pigment.

75. (Original) A glass material as marked by the process according to claim 66.

76. (Original) A thermally activated, chemically based marking method comprising the steps of:

electrostatically applying a layer of glass frit material containing an energy absorbing enhancer to a metal substrate; and

irradiating said layer with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancer in accordance with the form of a marking to be applied, thereby forming a bonded and permanent marking layer atop the substrate which is visible in contrast with the substrate; and

wherein the layer of glass frit material has a thickness ranging between 5 and 500 microns.

77. (Original) The method of claim 76 further comprising the step of providing a laminar air flow across the substrate during the irradiating step.

78. (Original) The method of claim 76, wherein the glass frit material comprises a borosilicate glass, and the energy absorbing enhancer comprises carbon black.

79. (Original) The method of claim 76, wherein the radiant energy beam comprises a laser having an energy level between 1 and 30 watts, a spot size ranging between 5 and 200 microns, and a marking speed along the substrate ranging between 25 and 1000mm/sec.

80. (Original) The method of claim 76 wherein said irradiating step is started at a room temperature of about 70° F.

81. (Original) The method of claim 76, wherein said grass frit material is applied as dry particles.

82. (Original) The method of claim 76, wherein said glass frit material is applied as liquid droplets.

83. (Original) The method of claim 76, wherein the glass frit material further comprises a colorant.

84. (Original) A metal substrate as marked by the process according to claim 76.

85. (Amended) A thermally activated chemically based marking method comprising the steps of:

electrostatically applying a layer of glass frit material containing an energy absorbing enhancer to a substrate selected from the group consisting of glass, ceramic, porcelain, aluminum, brass, steel, stainless steel and tin; and

irradiating said layer with a beam having less than 20 watts of average power and a wavelength selected to excite the energy absorbing enhancer in accordance with the form of a marking to be applied, thereby forming a bonded and permanent marking layer atop the substrate which is visible in contrast with the substrate.

Claims 86-95 (previously cancelled without prejudice)

96. (Amended) A thermally activated chemically based marking method comprising the steps of:

electrostatically applying a layer of glass frit material optionally containing an energy absorbing enhancer to a substrate to be marked in the form of a marking to be applied; and

irradiating said layer with a radiant energy beam having less than 20 watts of average power and a wavelength selected to excite the glass frit material and/or said energy absorbing

enhancer, thereby forming a bonded and permanent marking layer atop the substrate which is visible in contrast with the substrate.

Claims 97-109 (previously cancelled without prejudice)